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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,666	12/01/2003	Chang-Ho Suh	678-1310 (P11305)	2412

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EXAMINER	
FILE, ERIN M	
ART UNIT	PAPER NUMBER
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/724,666	SUH ET AL.	
	Examiner	Art Unit	
	Erin M. File	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/8/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. Claims 1-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-18 are drawn to apparatus and method for generating preamble sequences or signals. Determining whether the claim falls within one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. § 101 (process, machine, manufacture or composition of matter) does not end the analysis because claims directed to nothing more than abstract ideas (such as mathematical algorithms), natural phenomena, and laws of nature are not eligible and therefore are excluded from patent protection. Diehr, 450 U.S. at 185, 209 USPQ at 7; accord, e.g., Chakrabarty, 447 U.S. at 309, 206 USPQ at 197; Parker v. Flook, 437 U.S. 584, 589, 198 USPQ 193, 197 (1978); Benson, 409 U.S. at 67-68 , 175 USPQ at 675; Funk, 333, U.S. at 130, 76 USPQ at 281. "A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right." Le Roy, 55 U.S. (14 How.) at 175. Instead, such "manifestations of laws of nature" are "part of the storehouse of knowledge," "free to all men and reserved exclusively to none." Funk, 333 U.S. at 130, 76 USPQ at 281. Because the claims lack a practical application of this process to create a useful, concrete, and tangible result from the mathematical manipulations, the claims are non-statutory.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4, 7, 10, 13, and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidl et al. (U.S. Patent No. 5,732,113) in view of Meehan et al. (U.S. Pub. No. 2003/0119468).

Claims 1, 10, Schmidl discloses:

- a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data (abstract, lines 6-8)
- a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data (abstract, lines 9-12)

Schmidl fails to disclose:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas

However, Meehan discloses:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas ([0006], lines 4-6)
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas ([0006], lines 7-9)

Because Meehan discloses this method has the advantage of enhancing signal reception ([0006], lines 1-3), it would have been obvious to one skilled in the art at the time of invention to incorporate the preamble sequence generating and transmission method as disclosed by Meehan into the invention of Schmidl.

Claims 4, 13, Schmidl discloses:

- a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data, for one OFDM symbol period (abstract, lines 4-8, col. 8, lines 49-52)
- a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data, for a next OFDM symbol period after passage of the one OFDM symbol period (abstract, lines 4-6, 9-12, lines 52-55)

Schmidl fails to disclose generating first and second preamble sequences, however, Meehan discloses generating first and second preamble sequences ([0006], lines 4-9) Because Meehan discloses this method has the advantage of enhancing signal reception ([0006], lines 1-3), it would have been obvious to one skilled in the art at the time of invention to incorporate the preamble sequence generating and transmission method as disclosed by Meehan into the invention of Schmidl.

Claim 7, Schmidl discloses:

- a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data, for one OFDM symbol period (abstract, lines 4-8)
- a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data, for a next OFDM symbol period after passage of the one OFDM symbol period (abstract, lines 4-6, 9-12)

Schmidl fails to disclose:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas

However, Meehan discloses:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas ([0006], lines 4-6)
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas ([0006], lines 7-9)

Because Meehan discloses this method has the advantage of enhancing signal reception ([0006], lines 1-3), it would have been obvious to one skilled in the art at the time of invention to incorporate the preamble sequence generating and transmission method as disclosed by Meehan into the invention of Schmidl.

Schmidl further discloses it would be obvious to one skilled in the art that the exchange of the roles of even and odd results in no substantial differences in the function of the present invention (col. 8, lines 52-55). Therefore Schmidl teaches modifying the preamble sequence generation as described above, to further perform the first and second preamble sequence generation in the same manner changing the first preamble sequence to transmit null data on the odd data, and changing the second preamble sequence to transmit null data on the even data.

Claim 16, Schmidl discloses:

- a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data, for one OFDM symbol period (abstract, lines 4-8)
- a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data, for a next OFDM symbol period after passage of the one OFDM symbol period (abstract, lines 4-6, 9-12)

Schmidl fails to disclose:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas

However, Meehan discloses:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas ([0006], lines 4-6)
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas ([0006], lines 7-9)

Because Meehan discloses this method has the advantage of enhancing signal reception ([0006], lines 1-3), it would have been obvious to one skilled in the art at the time of invention to incorporate the preamble sequence generating and transmission method as disclosed by Meehan into the invention of Schmidl.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 1:00PM-9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin M. File

EMF

1/3/2007

MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER